

ABSTRACT OF THE DISCLOSURE

Equipment for a communication system has a semiconductor device formed by integrating a Schottky diode, a MOSFET, a capacitor, and an inductor in a SiC substrate.

5 The SiC substrate has a first multilayer portion and a second multilayer portion provided upwardly in this order. The first multilayer portion is composed of δ -doped layers each containing an n-type impurity (nitrogen) at a high concentration and undoped layers which are alternately
10 stacked. The second multilayer portion is composed of δ -doped layers each containing a p-type impurity (aluminum) at a high concentration and undoped layers which are alternately stacked. Carriers in the δ -doped layers spread out extensively to the undoped layers. Because of a low impurity
15 concentration in each of the undoped layers, scattering by impurity ions is reduced so that a low resistance and a high breakdown voltage are obtained.